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ABSTRACT

This individualized inservice packet on interpretive comprehension in the content areas provides teachers with instructional guidelines and information relating to the development of interpretive comprehension skills. It is one of a nine-part series of booklets--Teaching Teen Reading--in self-instructional format intended as a practical resource for teachers desiring condensed, readily usable answers to questions regarding reading instruction. Intended to lead students beyond the literal level of information gathering to interpretive thinking and acquisition of meaning, the booklet focuses on 13 suggested applications with learners: (1) locating the implied main idea; (2) finding and relating the support details; (3) drawing conclusions; (4) summarizing; (5) inferring sequence; (6) hypothesizing; (7) making comparisons; (8) categorizing; (9) inferring cause and effect; (10) recognizing character traits; (11) interpreting figurative language; (12) reading critically; and (13) utilizing reading for problem solving. A self-corrective post test, a glossary, and a 20-item bibliography are attached. (SR)

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Interpretive Comprehension in the Content Areas

Individualized
Inservice
Packet
Number IV

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INSERVICE EDUCATION

CS010819

TEACHING TEEN READING SERIES

Ohio Department of Education
Columbus

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FOREWORD

One of the complex problems facing educational institutions today is the challenge of developing personalized education programs to meet the needs of youth and adults. Providing students with the skills of reading is fundamental to this essential contribution of our schools. The ability to read and the use of reading skills are necessary components in the foundation of lifetime learning.

All teachers must be competent with the reading process so that their students might receive individualized and personalized learning. Students who are unable to use reading skills appropriate to the content area tasks they encounter lose valuable opportunities to retrieve and store knowledge and information.

The Division of Inservice Education continues to develop inservice education materials which may be used individually by teachers or by teacher leaders working together with a small group of colleagues. The materials are designed to give condensed professional information which will meet an instructional need or interest.

The **TEACHING TEEN READING SERIES** was designed as a resource for the teachers of upper elementary, middle and secondary schools. The content complements the use of any print materials supplied within the schools. Each of the nine inservice booklets in the series include a self-instructional format which contains concept, methodology, and content application. Two booklets relate to the process of diagnosis, four booklets provide prescriptive techniques, and three booklets illustrate classroom and independent application of reading skills.

Initially one set of this series was distributed to every building principal in Ohio. During the last six years the demand for copies has steadily increased as copies have been requested for individual use, for staff inservice, as the course text for graduate and undergraduate reading classes, and for parents who wish to support their son or daughter with mastery of a subject area.

Ohio remains in the forefront of providing inservice leadership through the provision of relevant materials. The Ohio Department of Education continues to strive to develop inservice materials which will be beneficial to teachers and administrators as they endeavor to work as a leadership team to achieve excellence in education.

Franklin B. Walter

Franklin B. Walter
Superintendent of Public Instruction

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INTRODUCTION

The purpose of this INDIVIDUALIZED INSERVICE PACKET is to provide the teacher with instructional guidelines and information relating to the development of interpretive comprehension skills. The content deals with helping students to gain meaning from the printed page as compared to decoding or locating single facts. Interpretation of content meaning calls for the teacher to assist students to combine experience with thoughtful reading in terms of making inferences and arriving at conclusions and understandings.

The packet deals with reading competencies which apply to varied types of reading and to all learning disciplines. The content does not refer to particular print materials but relates to the acquisition of interpretive comprehension skills using the books, reference sets, periodicals and other print sources which are on hand.

To receive maximum benefit from the packet, it is recommended that teachers apply the sections to the textbook generally used by their students. The intent is that the ideas presented in the packet will create particular teaching situations for meeting the reading needs of particular students.

The INDIVIDUALIZED INSERVICE PACKET is a practical resource for teachers who have a question regarding reading instruction which requires a condensed, readily usable answer. It is a means for securing a segment of information for immediate application in the classroom as compared to researching many sources.

A self-instruction process is incorporated beginning with steps of securing instructional information, including suggested uses in content teaching situations, and followed by a self-corrective post evaluation. The packet content is developed to provide the understandings summarized in the post evaluation. This form may be reproduced for the teachers' personal use. The responses may lead to continued study of the packet or to reading of the literature included in the bibliography.

INTERPRETIVE COMPREHENSION IN THE CONTENT AREAS

INTERPRETATION = FACTS + EXPERIENCE + IMPLICATIONS

OBJECTIVE

To enable the teacher to guide students to advance beyond the literal level of information gathering to interpretive thinking and acquisition of meaning.

INSTRUCTIONAL CONCEPT

Interpretive comprehension requires the examination of relationships toward making inferences from the facts identified on the literal level. The learner does not find this answer on the printed page. This type of answer is not a content statement but results from thinking about the facts, relating them to both real and vicarious personal experience and perceiving implied meaning.

This skill requires memory for facts, along with experience related to the topic, perception of relationships, recognition of implied meaning, and judgment making.

Thought is the "KEYSTONE" to INTERPRETATION

GENERAL INSTRUCTIONAL GUIDELINES

Interpretive comprehension is demonstrated when the learner uses facts directly stated in a selection along with his intuition and personal experiences as a basis for building a hypothesis. Stimulate this level of comprehension through setting purposes for reading and skillful questioning.

The key instructional technique involves asking the right questions. First the material is read silently and examined through discussion to determine what is stated. Next, assess the learner to determine whether or not his experience will allow him to infer from the facts. Then create the questions that will guide the learner in making interpretive judgments. Answers are verified only through inductive or deductive reasoning.

If it is discovered that the learners do not possess the necessary experience to make interpretive judgments, provide this experience through a film, picture reading, story, or discussion giving the background experience for interpretive thinking.

Most interpretive questions will begin with the word "why." Generally these questions demand more than one word answers. Adapt the purpose setting formula (WHO? WHAT? WHEN? WHERE?) to include the key question "WHY."

A range of aptitude for interpretive comprehension is found in any class. One group may be guided to the page, column, and paragraph. Others may be directed only to the page and column. Some learners may use only the page while others will need no locational aid. The learner experiences success as he works on his own level and contributes meaningful information during class discussion. He benefits from hearing the work of other students.

SUGGESTED APPLICATION WITH LEARNERS

I LOCATING THE IMPLIED MAIN IDEA

The guidelines of the purpose setting formula of literal comprehension are used for the first reading. (WHO? WHAT? WHEN? WHERE?) The "**WHY**" is added. Then the teacher directs students to read silently, either by paragraph or page, with the purpose to determine the author's main idea to be expressed in the student's own words.

Following the initial silent reading, the teacher directs the discussion toward the identification of ideas which are too general to have pertinent meaning.

The next step the teacher uses is to have students enumerate unessential details and make note in a discard list.

Through the discussion which is pointed toward assisting students to eliminate generality and specificity, they are led to state in their own words the core idea or main thought which remains.

The teacher encourages students to proceed in directed silent reading applying the thought process of discarding generality and unessential detail. As sections of varying lengths are read in this manner, the teacher asks students to give the main ideas for outlining purposes or to express the author's key idea in terms of a headline. These statements are called for in terms of the student's own words as compared to direct restatement from the context.

Suggested Teaching Tactic

Read this selection and select the main idea. Be sure that you select the one that most clearly describes the total selection.

1. Ohio's Influence and Power
2. "Mother of Presidents"
3. Ohio's Leadership in Many Fields
4. Ohio—An Industrial State

Content Example—Social Studies

You read earlier in this book about Ohio's rise as an important farming and industrial state. You know that as our state grew and became wealthy it assumed a place of influence and power. Its leaders often played an important part in the affairs of the nation. In fact some people feel that Ohio's greatest contribution to the country we live in has been the leadership it has provided for our national government.

As you saw in previous chapters, Ohioans have done important work in many fields. Men and women from Ohio have helped to advance science, industry, education, and social welfare. They have become famous for their work in literature and the fine arts. In this chapter you will read about the Ohioans who served our country in the national government and in the armed forces. Many of their names are already known to you.

Ohioans are justly proud of the nickname that has been given our state—"Mother of Presidents". As you know, eight Ohioans have served as President of the United States. Ohio's great men have also been Vice-Presidents, cabinet officers, diplomats, congressmen, and justices of the Supreme Court.

Excerpt *Ohio Geography—History—Government*, Roberts (Laidlaw Brothers, 1969), 262

Suggested Criterion Referenced Measurement

Given a passage of content material, the student will demonstrate his ability to identify the main idea. The learner may be asked either to select from choices provided or to summarize the main idea in his own words.

2 FINDING AND RELATING THE SUPPORT DETAILS

The learner's attention is directed to verbal symbols which assist him in recognizing essential support details. Through purpose setting, the teacher directs the student in locating the author's detail cues.

Helpful leads may include:

enumeration (listing)
importance (most, greatest)
appearance
time (then, before, after)
sensory description (visual, auditory, taste, touch)
sequence
cause and effect (because, therefore)
comparison and contrast (but, however)

Suggested Teaching Tactic

Direct the learner's attention to the verbal symbols which lead the reader toward the support details. Through purpose setting, direct him to the author's detail cues.

> After having read "Old Ballads," the student is directed to the use of the word, "First," in the second paragraph. Then ask the student to discover the other similar verbal symbols used.

Having provided the verbal symbols in a passage that indicate the main details of the topic, the teacher directs the learner to use his own words to describe these main details.

Verbal Cues:

"First"—
"Second"—
"Third"—

Content Example—Literature

The wandering minstrels of the Middle Ages traveled throughout the British countryside singing songs in exchange for food and lodging. These songs the minstrels sang are called ballads. No one is certain how old the first ballads are, who their authors were, or how they came to be written. But whatever their origins, ballads were sung for hundreds of years. Different versions arose as people, moving from one town to another, forgot some of the ancient lines and substituted new ones of their own. Too, minstrels changed words, making additions and omissions at will. Centuries went by before these ballads were written down in any permanent form.

Although ballads sprang from many sources and often underwent drastic revisions in the telling, they have certain distinctive features. First of all, the ballad is a highly dramatic story told in verse. It usually contains dialogue. The story often deals with a limited number of characters and includes only the facts needed for the telling of a single incident. Secondary details are omitted, each listener filling them in for himself. For example, someone listening to "Lord Randal" might imagine the setting, the way the characters look, and the girl's motives in poisoning her young man.

A second feature is the elemental themes with which the ballads deal—treachery, cunning, death, love, jealousy. Very few of the old ballads are humorous; most are tragic and often deal with the sensational.

A third feature is the characteristic verse form used in most of the old ballads. The stanzas are composed of four lines; the second and fourth lines of a stanza rhyme. Rhythm usually follows a very definite pattern.

Excerpt *Counterpoint in Literature*, Pooley, Daniel, Farrell, Grommon, Niles (Scott, Foresman and Company, 1967)

Suggested Criterion Referenced Measurement

Given a portion of content material in which details support the main idea, the learner will identify the key details.

SUGGESTED APPLICATION WITH LEARNERS

3 DRAWING CONCLUSIONS

To teach the ability to draw conclusions, the teacher emphasizes reading for the author's main point of the entire selection, using both fact thinking and inferential thinking. A conclusion is based upon multiple facts and inferred meanings. Hence, the teacher uses open-ended questions which lead the learner to analyze the content and then state in his own words the resulting total meaning based upon substantiation of logical reasons.

In another approach, the teacher instructs the student to use the format clue in looking for the author's concluding statements at the closing of the content. However, along with this reading, the teacher guides the student through the conclusion-drawing process at different stages of the content reading to ascertain why the author concluded in the stated manner.

In some instances, the students are given the opportunity to draw conclusions before reading the author's concluding statements and then compare their ideas with those of the author.

Suggested Teaching Tactic

After reading Archy's poem, ask the students what conclusions might be drawn concerning what type of an animal he is. Have the students underline the parts of the poem which support this conclusion.

The reader might conclude that people generally feel differently toward the hen and the oriole. Circle the parts that support this conclusion.

Content Example—Literature

the hen and the oriole

Don Marquis

well boss did it
ever strike you that a
hen regrets it just as
much when they wring her
neck as an oriole but
nobody has any
sympathy for a hen because
she is not beautiful
while everyone gets
sentimental over the
oriole and says how
shocking to kill the
lovely thing this thought
comes to my mind
because of the earnest
endeavor of a
gentleman to squash me
yesterday afternoon when i
was riding up in the
elevator if i had been a
butterfly he would have
said how did that
beautiful thing happen to
find its way into
these grimy city streets do
not harm the splendid
creature but let it
fly back to its rural
haunts again beauty always
gets the best of
it be beautiful boss
a thing of beauty is a
joy forever
be handsome boss and let
who will be clever is
the sad advice
of your ugly little friend
archy

Excerpt: *Counterpoint in Literature*, Pooley, Daniel, Farrell, Grommon, and Niles (Scott, Foresman and Co., 1967), 269.

Suggested Criterion Referenced Measurement

Given a passage of content material, the student will make conclusions and be able to support all conclusions made.

SUGGESTED APPLICATION WITH LEARNERS

4 SUMMARIZING

The teacher guides the student in locating the main points contained in the passage. Next, the teacher asks that the supporting

details that accompany the main points are identified. Finally, the student is instructed to use these facts to summarize the total passage in his own words.

Readiness content may be prepared for the student to apply the following steps:

1. Circle the most important points of the passage.
2. Underline the supporting details which accompany each main point.
3. Using only the key features of the passage, summarize the author's meaning. (The student uses his own words.)

The teacher provides a passage containing much superfluous information for the student to read silently. The student is then directed to summarize the paragraph in his own words. He is cautioned to use only the key features for his summary. He uses his judgment concerning the relative worth of the information provided.

Teacher directions may include:

1. Note the main points and all supporting details.
2. Cross out all parts of the passage which are not of enough importance to be included in a summary.
3. Using only the remaining key features, summarize the passage in your own words.

The teacher directs the student to read a typical content area chapter summary. Then, the student is asked to evaluate the author's summary by comparing and contrasting the passage with his perception of the chapter's key points. The teacher directs the readers through the following steps:

1. Carefully analyze each sentence in the chapter summary.
2. Cross out sentences which are not key points for this summary.
3. Add points which you feel are necessary for this summary.
4. Defend your deletions and additions.

Suggested Teaching Tactic

Summarize, in your own words, what you have learned about statistics and how this field of study relates to the grade you receive in mathematics.

Content Example—Mathematics

When you look at your mathematics grade or at your score on a mathematics test, you see a number or a letter that describes, in a general way, the quality of your daily work, or of your work on that test. It would be practically impossible to indicate on a small grade card the record of each of the many different things that you did during a grading period. There-

fore, your teacher gives you a number or a letter to represent the quality of your work for a single task, for a day's work, or for several days' work. At the end of a grading period, your teacher gives you a single grade to represent all of the grades received during the period. (In the following discussion we shall assume that the teacher used only the information available for this example. In actual practice the teacher may give additional weight to grades at the end of the period, or to a final examination.)

Suppose that your 12-week record was as follows.

Week	1	2	3	4	5	6	7	8	9	10	11	12	Final grade
Grade	B	C	C	C	C	B	A	A	B	B	A	A	B

Is B the proper final grade for the 12 week period? Does the letter B really describe what you have done in the period? It does not show that sometimes you made A's and sometimes C's. As with a grouped distribution, some information is lost, but the result is interpreted more readily.

The field of study devoted to deciding what facts are important in a given situation, collecting the facts, organizing and presenting them, interpreting them, and using the results to make decisions is called statistics. In this chapter we are concerned chiefly with organizing and presenting the data. A single grade B is a result of such organization. A statistic is a number used to represent a more complex set of data. What would happen if your grades were those below?

Week	1	2	3	4	5	6	7	8	9	10	11	12	Final Grade
Grade	B	D	D	B	B	A	A	B	B	B	A	A	B

Do you think that B is still a good representation of the entire 12 weeks?

Excerpt: *Mathematics—An Integrated Series*, Book One, Price, Peak, Jones (Harcourt, Brace and World, Inc., 1965).

Suggested Criterion Referenced Measurement

Given a passage of content material, the student identifies the key points and expresses these points in a concise summary.

SUGGESTED APPLICATION WITH LEARNERS

5 INFERRING SEQUENCE

The teacher instructs the reader in recognizing and using milepost words which denote sequence such as **and, next, then,** and **following.** Literal comprehension is applied first in noting sequential steps. Then the teacher guides the student to infer sequence

by speculating as to what may occur next or as to what may have taken place between two incidents. The reader supports his inference through recalling literal facts in his own words, "reading between the lines," and telling why.

Suggested Teaching Tactic

Have students read this selection, and put the following events in the correct sequence:

pedal keys for the feet
organist pumped bellows with one hand
instrument powered by water
organ carried on a strap around the neck
composing of art music for the instrument

Ask students to reread the paragraph, looking for any details that might have been left out of the sequence of events, and adding these details to complete the sequence.

Content Example—Music

DEVELOPMENT OF THE PIPE ORGAN

One of the most important instruments of the Baroque period was the pipe organ. The instrument itself originated in Egypt around 250 B.C. and was improved upon by the Greeks and Romans. These instruments were powered by water. When the Dark Ages fell upon Europe, the pipe organ was found only in the Middle East. By the eighth century organs were again being built in Europe. During the Middle Ages, there were several sizes of organ, including one that could be carried on a strap around the neck. The organist played with one hand, and with the other pumped the small bellows to force air into the pipes. The large cathedral organs were still crude—it took a blow with a clenched fist to press down a key. The wind bellows were operated by man or animal power. One of the first pipe organs to have pedal keys for the feet was built in the Halberstadt Cathedral, Germany, in 1361. By the fifteenth century, the basic mechanics of the pipe organ had been developed and the composing of art music for the instrument dates from this time.

Excerpt: *Our Musical Heritage—Discovering Music Together*, Leonard, Krone, Wolfe, Fullerton (Follett Educational Corporation, 1970), 134.

Suggested Criterion Referenced Measurement

Given a selection containing a sequence of events, the student will place a list of these events in the proper sequence. Then he is requested to supply missing steps, infer actions between two stated incidents, and/or anticipate a final incident.

SUGGESTED APPLICATION WITH LEARNERS

HYPOTHESIZING

The teacher assists the reader to hypothesize by utilizing the interpretive comprehension skills of detecting the main point and major support details along with noting sequence in making an assumption about a next step or outcome.

Based upon directed silent reading, the student justifies his hypothesis by discussing his reasoning with factual and inferred knowledge.

Suggested Teaching Tactic

Have students read through step number five and hypothesize as to the last two steps necessary for completion of the drawing.

Content Example—Industrial Arts

LAYING OUT A DRAWING

Before a drawing can be started, several things must be known. The size of the object must be known. The number of views needed must be decided. The space between views can be about the same as that on the edges. If it is to be dimensioned, space must be allowed to draw the dimensions. Each line of dimensions requires ¼".

After all of these are known, the size of paper must be selected.

The views should be spaced so they give the drawing a balanced appearance. The right and left margins between the view and the border are equal. The bottom margin is often larger than the top.

The following steps show how to lay out a three-view drawing on the paper. It is assumed that these views will not be dimensioned.

1. Draw the borders as shown in Fig. 9-1, Step 1. This leaves a working space of 7¼" x 11".

2. Decide on the views. Make a rough sketch on a work sheet. This helps find out how much space is left for dividing between the views. See Fig. 9-1, Step 2.

3. The length of the front view plus the depth of the side view is 8". This subtracted from 11" leaves 3" for the outside margins and the space between views. It was decided to make each margin 1" and leave 1" between views. Lay this out as shown in Fig. 1, Step 3.

4. Now look at the height of the front views. This plus the depth of the top view equals 5". This subtracted from 7¼" leaves 2¼". It was decided to leave a bottom margin of 1", ¼" between views, and ½" on the top

margin. These measurements were selected because they seemed to make the drawing fit the sheet. See Fig. 1, Step 4.

5. The largest sizes of each view have been located. Draw these in as large blocks. Examine to see if the views appear balanced on the sheet. If not, move them.

Excerpt: *Basic Industrial Drafting—Communicating Graphically*, Spence (Chas. A. Bennett Co., Inc., 1974), 96.

Suggested Criterion Referenced Measurement

Given an incomplete content selection, the student will hypothesize as to the missing portion. He must be able to justify his decisions with factual and inferred knowledge.

SUGGESTED APPLICATION WITH LEARNERS

7 MAKING COMPARISONS

The teacher develops the meaning of comparison and contrast by first having students select concrete objects and then applying the terms in discussion of words and experiences. In noting comparison, the teacher assists students in identifying like and corresponding features; in contrasting students are helped to cite unlike factors.

The teacher may prepare working examples of selections which explicitly provide both comparisons and contrasts. The direction to students is to cite first comparisons and then contrasts:

Nouns, Verbs, Adjectives

	_____	_____
Comparisons:	_____	_____
	_____	_____
	_____	_____
Contrasts:	_____	_____
	_____	_____
	_____	_____

Students may also write paragraphs which describe major comparisons and contrasts.

A more advanced application is for the teacher to direct students to find two sources on the same topic and compare and contrast the provided facts.

Example:

"The Revolutionary War—The Canadian Viewpoint"
"Our Revolutionary War" by General George Washington

"The Battle of Gettysburg" by an Atlanta Journalist
"Gettysburg—My Home and My Battleground"

Suggested Teaching Tactic

Have students compare the two main sources of water and list first all of the ways in which they are alike and then how they are different.

Content Example—Science

Our two main sources of supply are surface water and ground water. Both of these sources get water from rain or melted snow. Surface water flows off the land and forms streams and lakes. What sinks into the soil and porous rock becomes ground water. As the water moves downward, some moisture is left around each soil particle. This is the moisture that plants use.

The rest of the water keeps on going down until it comes to tightly packed soil or solid rock through which it cannot pass. Since the water can go no further down, it gathers in the spaces between the particles of soil or rock above. When these spaces are filled with water, the soil or rock is saturated. The top of the saturated soil or rock is called the water table.

Ground water must first be brought up to the surface before it can be used as a source of supply. Sometimes the water table comes to the surface on a hillside. There ground water flows out, forming a spring. Where the water table is beneath the surface, wells are built. A well is an artificial spring. When the bottom of a well is at or below the water table, ground water runs in from the saturated soil or rock around it. Then the water is brought up to the surface, ordinarily with a pump of some kind. If the water table is fairly near the surface, shallow wells can be dug or driven into the ground. But if the water table is farther down, deep wells must usually be drilled.

Unlike ground water, surface water is ready for use at once as a source of supply. And it can be used directly without wells or pumps. Streams and lakes provide water directly to cities nearby. For example, the Mississippi River supplies St. Louis with water, while Lake Michigan provides water for Chicago. However, not all cities are close to a satisfactory supply of surface water. New York City gets most of its water from reservoirs more than 100 miles away, as you learned in UNIT 2. The reservoirs are artificial lakes for storing water. They are made by building dams across streams. How Los Angeles gets its water is shown in the drawing on page 40. Some of this water comes from nearly 350 miles away.

Excerpt: *Science Problems 2*. Beauchamp, Mayfield, Hurd (Scott, Foresman and Company, 1965), 128.

Suggested Criterion Referenced Measurement

Given a content selection in which a comparative relationship exists, the student will determine first what this relationship is and next its contrasts.

SUGGESTED APPLICATION WITH LEARNERS

8 CATEGORIZING

The objective is to teach readers to analyze and synthesize. These processes are inherent in the ability to engage in interpretive comprehension.

Knowledge of word meaning is the key to this type of reading along with the insight to recognize relationships. Many opportunities are provided students for acquiring the skill of classifying ideas and placing people, things, places and/or events into categories.

Suggested Teaching Tactic

Direct students to examine the animal names below. Determine their classification and place each one in the appropriate category.

dog	trout
crayfish	sponge
worm	oyster
frog	grasshopper
robin	jellyfish
rattlesnake	

Content Example—Science

Animals made up of more than one cell are called Metazoa (met-uh-zoh-uh). You are more familiar with animals in this group. There are over 900,000 kinds of metazoa, and about 20,000 kinds of protozoa. Animals made up of more than one cell are divided into two large groups. One group consists of animals with backbones. These are called vertebrates (ver-tuh-brayts). The other group is made up of animals without a backbone. These are called invertebrates (in-ver-tuh-brayts). Some examples of invertebrate animals and how they get the oxygen into their bodies are listed here.

INVERTEBRATES	HOW OXYGEN IS OBTAINED
Sponges	Absorbed directly from the water
Jellyfish	Absorbed directly from the water
Worms	Absorbed through the skin

Oysters	Absorbed through gills from water
Crayfish	Absorbed through gills from water
Grasshoppers	Absorbed through openings in abdomen

The vertebrate animals have been grouped into five classes. These are listed in the next table.

VERTEBRATES	EXAMPLE	HOW OXYGEN IS OBTAINED
Amphibians	Frog	Gills when young; lungs when adult
Fish	Trout	Gills
Reptiles	Rattle-snake	Lungs
Birds	Robin	Lungs
Mammals	Dog	Lungs

The vertebrate animals living on land get their oxygen through lungs. Those vertebrate animals living in water (except mammals such as whales) have gills which absorb oxygen from the water. The gills can remove oxygen from the air which is dissolved in the water. You can watch a fish in water to see if it needs oxygen.

Excerpt. *Science 2 Experiment and Discovery*, Davis, Burnett, Gross, Prichard (Holt, Rinehart and Winston, Inc., 1969).

Suggested Criterion Referenced Measurement

Given a compilation of knowledge, the learner will determine the necessary categories and the items under the appropriate categories.

SUGGESTED APPLICATION WITH LEARNERS

INFERRING CAUSE AND EFFECT

The teacher stimulates students to use inference in reasoning cause and effect. In comprehension at this level, the reader does not draw upon factual statements by the author citing cause and effect but rather reads between the lines to assume either a cause or an effect or both.

The teacher approaches this type of reading and thinking by using small portions of applicable content and providing the student with open-ended questions which state the cause. The student responds with the corresponding inferred effect. Another means

may be to provide a variety of causes and effects from a selection and direct the reader to match them.

The most sophisticated approach is to have students discuss and debate inferred causes and effects following silent reading and reasoning.

Suggested Teaching Tactic

Either discussion or individual written responses may be directed to the following:

How might she be affected by remaining in the neck-deep water? (cause-effect)

Using the first paragraph, briefly indicate the cause of her dilemma. (cause-effect)

Having read the fourth paragraph, what do you suppose has happened to her family? (cause-effect)

Content Example—Periodical

Her lungs seemed about to explode for want of air as she desperately squirmed through the foot-wide window opening of the overturned car. Then she was out and standing in neck-deep water. It was 10 degrees below zero and a 40-m.p.h. wind slashed at her face. Half of the car's wheels, and a few inches of chassis, were visible. And that was all.

As she gulped air she heard the screams of her children, still trapped in the car, but there was no sound from Ben, her husband. I must go back down and show them how to get out through the window.

She dived and groped for the driver's window through which she had escaped. It was closed! She dived again and again, frantically feeling for the open window. It didn't occur to her that the current had carried her a few feet downstream, that she was scratching around the rear window rather than the driver's window.

Suddenly she realized that the screaming had stopped. Numbed, bewildered, she stood in the marrow-chilling water, listening to the silence, feeling her face stiffen from the cold. She was alone. God, I don't want to be out here alone. I want to be with my family. But something has to be done. Someone has to know what happened.

Excerpt: "Terror at Shoshone Creek", Blank, Joseph P., *Reader's Digest (October, 1973)*

Suggested Criterion Referenced Measurement

Given a selection of material, the learner will identify cause-effect relationships by inference.

SUGGESTED APPLICATION WITH LEARNERS

10 RECOGNIZING CHARACTER TRAITS

The teacher guides the reader beyond the literal understanding of a character which is based upon factual description to assuming character traits as evidenced through acts, conversation, thoughts, and intentions, and to comparing and contrasting one character with another in the selection or in life.

Suggested Teaching Tactic

Having read the passage in which Chuchundra is first introduced to the readers, ask the readers to describe the type of character that he is. Carefully select two words other than those used by Kipling to describe him.

Content Example—Literature

Teddy carried him off to bed and insisted on Rikki-Tikki's sleeping under his chin. Rikki-Tikki was too well bred to bite or scratch, but as soon as Teddy was asleep he went off for his nightly walk around the house, and in the dark he ran up against Chuchundra the muskrat, creeping round by the wall. Chuchundra is a brokenhearted little beast. He whimpers and cheeps all the night, trying to make up his mind to run into the middle of the room, but he never gets there.

"Don't kill me," said Chuchundra, almost weeping, "Rikki-Tikki, don't kill me."

"Do you think a snake-killer kills muskrats?" said Rikki-Tikki scornfully.

"Those who kill snakes get killed by snakes," said Chuchundra, more sorrowfully than ever. "And how am I to be sure that Nag won't mistake me for you some dark night?"

"There's not the least danger," said Rikki-Tikki; "but Nag is in the garden, and I know you don't go there."

"My cousin Chua, the rat, told me—" said Chuchundra, and then he stopped.

"Told you what?"
"H'sh! Nag is everywhere, Rikki-Tikki. You should have talked to Chua in the garden."

"I didn't—so you must tell me. Quick, Chuchundra, or I'll bite you!"

Chuchundra sat down and cried till the tears rolled off his whiskers.

Excerpt: *Adventures for Readers*—Book 1, O'Daly and Nieman (Harcourt, Brace and World, Inc., 1968), 463. Excerpt from "Rikki-Tikki-Tavi" by Rudyard Kipling.

Suggested Criterion Referenced Measurement

Given a passage of content material, the student will use implied information to infer character traits.

SUGGESTED APPLICATION WITH LEARNERS

II INTERPRETING FIGURATIVE LANGUAGE

The teacher stimulates the reader to enjoy and appreciate the use of figurative language by reading many poems to the class and encouraging the students to write creative poetry.

Since figurative language is found in all media, including advertising, the lyrics of popular music, and the description of characters in a play, another preparatory learning experience may be to select figurative expressions which are familiar to the student and have him rewrite the phrases using his own words.

Choosing a selection which contains figurative language, the teacher asks the student to read aloud phrases which are particularly appealing to him and then restate the section orally or in writing in his own words.

Suggested Teaching Tactic

The teacher may use the following approach:

The writer uses figurative language in this poem. What do you think is meant by the words ". . . making moving pictures"?

Content Example—Poetry

PICTURES HIGH AND LOW

Virginia Kunkle

The wind pushes clouds
Gently across the sky
Making moving pictures
As they glide by

The wind drops the clouds
Lower in the blue
Making shadow pictures on earth
For me and you

The pictures in the sky
And the shadows on the ground
Are copies of each other
As the wind moves the clouds around

Reread the poem. How might you have written a poem on the idea of what causes shadows?

Suggested Criterion Referenced Measurement

Given a selection of content material, the student will identify the figurative language used and will be able to express the meaning in his own words.

SUGGESTED APPLICATION WITH LEARNERS

12 READING CRITICALLY

As the teacher and students work together with the printed word, the continuous objective of the teacher is to ensure that students examine the content thoughtfully discriminating between truth and fallacy; fact and fiction; propaganda and actuality; and bias and objectivity.

Ongoing experiences are provided which require the student to evaluate content with relevancy to his daily personal life.

Critical reading is encouraged through planned experiences for the students to

Keep questions in mind while reading.

Learn to read words in their precise sense in relationship to the particular content distinguishing between dictionary and contextual use.

Read for the author's underlying meaning and intent.

Read to determine if the content has factual validity or is a statement of the author's personal opinion.

Learn to read "between the lines."

Read factual material from many sources comparing them for currency.

Check the textbook against the proof of other media sources and life.

Compare stories, biographies and history with life.

Look for emotion-laden words which create bias, form a mental picture and create a mood.

Recognize books which are resources for research as compared to fiction.

Evaluate news stories and editorials in terms of factual happenings.

Suggested Teaching Tactic

Put the heading "No One Can Lose" on the board and discuss the logic expressed. Then direct the student to note the words or phrases that might indicate possible deception.

Have the student look for points that a contest loser might use to protest this advertisement.

Have the student rewrite the advertisement without the use of such phrases as "can't lose" or "absolutely free." Would this change the reader appeal? Next, have the student locate the words that create a favorable bias or mood, such as "glorious." Discuss how such words affect a reader's feelings toward an advertisement.

Direct the student to consider the word "free." Have him infer how such a contest might work.

Content Example—Advertising

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This is the contest you have waited for! Everyone is a winner. The contest is a simple one—the prizes are fantastic.

Win an absolutely free vacation for two on Treasure Island, Florida. Spend four days and three nights at the beautiful Long John Silver Motor Inn.

Lounge on the sparkling white sand. Drive a few miles to St. Petersburg or Tampa. Motor across sunny Florida to Disney World. Do whatever you choose for four glorious days!

How is all this possible? Just send fifteen dollars ($15.00) and one label from a box of Treasure Chest Spices. Receive, free, a treasure chest assortment of spices from all over the world. Your name is then entered in the vacation sweepstakes.

You can't lose—everyone receives a box of spices worth twenty dollars ($20.00). Hundreds of lucky people will win a free vacation on Treasure Island.

Send your label from Treasure Chest Spices and fifteen dollars today! You can't lose.

Suggested Teaching Tactic

After the student has silently read the excerpt, or a similar one, direct him to note the source of the information. Have him give reasons why he would feel that the article is accurate.

Direct the student to underline all portions of the article that might sound unbelievable to him. Have him tell why he feels this way.

Discuss how he might discover if such a plant exists.

Have the student compare and contrast this article to one that is constructed about an imaginary plant or animal. Have him note the similarities and differences in the manner in which the "facts" are presented.

Content Example—Reference Source

In the coastal regions of North and South Carolina is found a plant which traps insects in its leaves and digests them. This carnivorous plant, Dionaea (DI oh NE uh), grows in bogs in which the soils lack available nitrogen. Thus, the plant's need for nitrogen is met by eating insects.

The Dionaea grows about a foot high. It bears a cluster of small, white blossoms at the top of the flower stalk. The blossoms rise from a tuft of strangely shaped leaves. The leaves have two parts. The lower portion of the leaf is bladelike. The upper portion has two lobes hinged to a rib. Each lobe has three sensitive hairs on its surface. The edges of the lobes are fringed with sharp bristles.

When an insect lands on one of the hairs, the two lobes of the leaves snap shut. The insect is trapped inside the leaf. Fluid secreted by special glands of the leaf digests the soft parts of the insect.

When the plant has taken in the food, the leaf opens and is once again ready to snap shut on another victim. The leaf withers and dies when it has caught several insects.

Adapted: *The World Book Encyclopedia* (Field Enterprises Educational Corporation, 1974).

Suggested Criterion Referenced Measurement

Given a content passage, the student will make an evaluative judgment that requires critical thinking.

SUGGESTED APPLICATION WITH LEARNERS

13 UTILIZING READING FOR PROBLEM SOLVING

The teacher constantly makes students aware that the value of reading lies in its use not simply in possession of skill. With the exception of recreational reading, the major function of reading is problem-solving in both the student's in-school and out-of-school personal life, both immediate and long-term.

Although reading in the content areas is purposeful and functional, the problem-solving correspondence is taught and then used in numerous applied experiences. Guidelines for teaching this reading skill are to assist the student to

Become aware of the problem.

Clarify it.

Read for possible solutions.

Analyze and select the most appropriate solution.

Draw a conclusion.

Suggested Teaching Tactic

Direct the student to complete the order form. Have him first fill out the sections that he knows or that he can copy directly from the catalog. Draw attention to the final section in which he must compute the variety of possibilities for payment (money and coupons).

Have the student rewrite the order form to simplify it. Have him justify the changes.

Content Example—Mathematics

HAPPINESS LIMITED, INC.

P.O. Box 334—Washington's Forge, Pa. 16412

814-216-7318

Date_____

Quantity	Title	Size	Coupons	Price
				Sub Total $
				Tax $
				Postage $
Total Items			Total Coupons	Total $

Payment should accompany all orders (no cash).
Send check or money order (no stamps).
Add 4% sales tax—figured on Sub Total.
Add postage: $ .50 on orders through $5.00
$ .80 on orders $5.00–$10.00
$1.10 on orders $10.01–$15.00
$2.00 on all orders more than $15.01

☐ Enclosed find $_____ ☐ Check
☐ Money Order

Name_____
Address_____
City_____ State_____ Zip_____
Signed_____

Fill out the Happiness Limited Order Blank for the following items:

3–*Marvelous Mouse Sweatshirt*, complete with title on the front and a 4 color picture of Marvelous Mouse on the back. S – M – L
Each $4.98 and 10 coupons or
$2.98 and 50 coupons

1–*Gertrude Groundhog Watch*, with glow-in-the-dark numbers. Elastic watchband (fits all wrists).
Each $7.75 and 10 coupons or
$5.25 and 25 coupons

4–Hits of 1973 Record–L.P.–Stereo 23 of the top 40 list of the year. Sung by your favorite stars.
Each $3.98 and 10 coupons or
$1.98 and 30 coupons

You have only $34.00 and 216 coupons. Be sure that your total does not exceed what you have.

Suggested Criterion Referenced Measurement

Given content information that requires him to read and reason to perform the problem solving process, the student will complete the appropriate information.

GLOSSARY

Analyze	a thinking process which is inherent in the ability to determine categories and classifications and to understand their relationship to one another and to the whole
Aptitude	a range of natural ability within a group of students. The recognition of varied learning capacity influences the nature and amounts of guidance groups of students require with comprehension on the interpretive level
Deductive reasoning	thinking from the general to the particular. Interpretive judgments may be verified through this type of thinking
Discard operation	thinking which eliminates generality and unessential detail. Following this process readers are guided to state in their own words the core idea which remains
Figurative language	words expressing one thing in terms which would normally denote another. In context these two things become analogous
Hypothesis	an assumption or interpretation based upon the learner's intuition and personal experience
Inductive reasoning	an inference which draws a general significance from particular components. A means of verifying an interpretive judgment
Inferences	logical conclusions not stated in, but derived from evidence given in, printed matter.
Interpretive comprehension	perception of an implied meaning from facts related to both real and vicarious experiences
Synthesize	the combination of elements that form a whole. Once relationships have been identified through the analytical process, these common elements are listed in one category. The ability to reconstitute after having analyzed. The process is inherent in the ability to categorize on the interpretive level
Verbal symbols	various types of terms in the context of material which help the learner recognize support details for the main idea

SELF-CORRECTIVE POST TEST

Now that you have completed this packet, rate yourself.

1. Do you know how to identify a variety of interpretive questions.

   Yes _____ Partially _____ No

2. Can you explain how an interpretive question is different from one on the literal level?

   Yes _____ Partially _____ No

3. Are you able to construct meaningful interpretive questions?

   Yes _____ Partially _____ No

4. Are you aware of the relationships which can be shown through interpretive questioning?

   Yes _____ Partially _____ No

5. Can you construct different forms of questions on the interpretive level?

   Yes _____ Partially _____ No

6. How many of these forms *have* you utilized in the teaching of your last content unit?

This *Self-Corrective Post Test* form is designed for the convenience of teacher readers to reproduce multiple copies for use as needed.

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Non-Print Resources

1. *Teaching Reading in Secondary Schools* from Syracuse University

   "Developing Comprehension Skills"

   "Developing Skills for Reading Literature"

   Contact Information:
   Marketing Division of Film Rental Library
   1455 East Colvin Street
   Syracuse, New York 13210

2. Far West Laboratory Minicourses

   "Effective Questioning—Elementary"

   "Higher Cognitive Questioning — 4 and up"

   Contact Information:
   Product Services
   Far West Laboratory for Education Research and Development
   1 Garden Circle
   Hotel Claremont
   Berkeley, California 94705
   415-841-9710

COMPETENCY CRITERIA

The following characteristics of effective content-related reading instruction may serve as self-appraisal guidelines.

Students are enabled to gain information, knowledge, wisdom and enjoyment from reading, for my teaching procedures include:

_____ Planning and tailoring my teaching to accommodate the wide range of reading strengths and weaknesses represented within the class.

_____ Fusing reading with other components of language (listening, speaking, and writing) to reinforce meaning.

_____ Relating the content to the varied experiential background of the students.

_____ Encouraging students to react to the meaning of print content by thinking critically about it.

_____ Utilizing many types of reading sources comprising multi-readability levels.

_____ Teaching vocabulary and comprehension skills on various levels to assure that all students experience success.

_____ Guiding silent reading through pre-reading preparation, vocabulary assistance, and skillful questioning.

_____ Providing for varied uses of reading in problem solving, gaining information, and enjoyment.

_____ Modeling positive attitudes for students by being a high interest reader myself.

_____ Being committed to improve reading abilities and book interest within the class and school.

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